

1. Chemical: Didecyl dimethyl ammonium chloride
2. Test Material: 100% (technical A.I.); pale yellow, transparent liquid, soluble in water.
3. Study Identification: Static Acute Toxicity Testing of 10-2D (50% active ingredient) to Daphnia magna; Project # 03890-1; Date 5/18/82; Prepared by and for Onyx Chemical Co., 190 Warren Street, Jersey City, NJ 07032.
4. Study Type: 48-LC₅₀
 - A. Test Species: Daphnia magna
5. Reviewed by: Curtis E. Laird
Fishery Biologist
EEB/HED
Date: 2/11/85
ReviewTime: 3 hours
Approved By:
Date:
6. Reported Conclusions: The concentration of 10-2D (tested as 100% active ingredient) lethal to 50% of the test population, and 95% confidence limits are 0.018 (0.014-0.022) mg/l.
7. Reviewer's Conclusions: This study indicates 5% BTC 99 is very highly toxic to daphnia magna with an LC₅₀ of 0.018 ppm. This study does fulfill the requirement in support of registration.



Material and Methods Employed

The test material was tested 100% active ingredient. Daphnids used for testing are the newly released neonates less than 20 hours old and still within the first instar stage of development. The newly released instars are isolated from the adults into fresh water and fed. These instars are used in test whose starting time falls within the 20 hour limit calculated from the time of adult isolation on the previous day. Daphnia are not fed during testing.

Discussion/Results

The 48-hour LC_{50} is 0.018(0.005-0.05) ppm. The LC_{50} was calculated using the probit method.

Statistical Analysis

Litchfield and Wilcoxon

Reviewer's Evaluation

a. Test Procedure

The test procedure complies with the recommended EPA protocol of October 1982, Subdivision E Pesticide Assessment Guidelines

b. Statistical Analysis

Probit analysis

c. Discussion/Results

The 48-hour LC_{50} is 0.018 ppm with the 95% confidence limits of 0.005-0.05 ppm.

Conclusions

- a. Category: Core
- b. Rational: N/A
- c. Repairability: N/A

LAIRD 5% BTC 99 48-HOUR LC50 FOR DAPHNIA MAGNA

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
.056	20	18	90	.0201225
.032	20	19	95	2.00272E-03
.018	20	10	50	58.8098
.01	20	1	5	2.00272E-03
.0056	20	2	10	.0201225

THE BINOMIAL TEST SHOWS THAT .01 AND .032 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS .018

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS
4	.120907	.0177634	.0133466 .0235319

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.741345	2.80715	.038059

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED
USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 3.43603
95 PERCENT CONFIDENCE LIMITS = .47756 AND 6.39451

LC50 = .0178801
95 PERCENT CONFIDENCE LIMITS = 5.80556E-03 AND .0535199

LC10 = 7.63408E-03
95 PERCENT CONFIDENCE LIMITS = 3.08311E-05 AND .013977
